IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: DAGGETT *et al.*

Serial No.: 08/935,105

Filed: September 29, 1997

For: *HUMAN N-METHYL-D-ASPARTATE RECEPTOR SUBUNITS, NUCLEIC ACIDS ENCODING SAME AND USES THEREFOR*

Art Unit: Unassigned

Examiner: Unassigned

I hereby certify that this paper and the attached papers are being deposited with the United States Postal Service as first class mail in an envelope addressed to:
Assistant Commissioner for Patents,
Washington, D.C. 20231, on this date.

11/18/97
Date

Nancy V. McElrath

INFORMATION DISCLOSURE STATEMENT IN ACCORDANCE WITH 37 C.F.R. § 1.97(b) and 1.98

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Because this Information Disclosure Statement is filed prior to receipt of a First Office Action on the Merits for the above-captioned application, a fee for filing this statement should not be due. If it is, however, determined that a fee is due, any fees that may be due in connection with filing this paper may be charged to Deposit Account No. 02-4070.

In accordance with the duty of disclosure imposed by 37 C.F.R. §1.56 to inform the Patent Office of all references known by Applicant or Applicant's representative that may be material to the examination of the subject application, Applicant's representative hereby provides this Information Disclosure Statement that is prepared in accordance with 37 C.F.R. §§1.97-1.98. Forms PTO-1449 (10 pages) are provided herewith. Copies of the references listed on the Form PTO-1449 are <u>not</u> provided herewith as they have been previously provided in connection with U.S. Serial No. 08/231,193, which is relied upon for an earlier filing date in accordance with 35 U.S.C. §120.

The document CK that is newly cited in connection with this application is attached hereto and is in the English language. Other than as noted below, the documents listed on the Forms PTO-1449 are in the English language. The Japanese patent no. 6014783 (item 0) is in the Japanese language. The foreign patents PCT International Patent Nos. 93/23536, 93/25679, 94/01094, 94/04698, and 95/26401 (items T, V, W, A, and AA respectively) have English language abstracts. Hence, in accordance with the requirements of 37 C.F.R. §1.98, as amended effective March 16, 1992, no further explanation of the listed items are necessary.

The Examiner's attention is directed to reference BI (Hess *et al.*) which is an abstract that published in connection with the 1994 Biophysical Society Annual Meeting. The abstract reports isolation of cDNA clones encoding human N-methyl-D-aspartate receptor subunits, but does not provide the nucleotide sequences of the human clones. A poster presented at the poster session showed a protein sequence comparison among the deduced receptor proteins hNMDAR1A, hNMDAR2A, and hNMDAR2B, but did not provide any nucleotide sequences of the corresponding clones. A copy of the poster is provided in reference BI.

Although these documents are made known to the Patent and Trademark Office in compliance with Applicant's duty of disclosure, such disclosure is not to be construed as an admission by Applicant or Applicant's representative that any of the references, singly or in any combination thereof, is effective as prior art against the subject application. In accordance with 37 C.F.R. §1.97(h), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 C.F.R. §1.56(b) exists.

Applicant also makes known to the Examiner the following related, co-pending applications:

U.S.S.N	Inventor	Filing date
08/052,449	Daggett *et al.*	4/20/93
08/480,474	Daggett *et al.*	6/6/95
08/486,273	Daggett *et al.*	6/6/95
08/940,086	Daggett *et al.*	9/29/97
08/940,035	Daggett *et al.*	9/29/97

Corresponding International Applications

WO94/24284	4/20/94
G.B. \503689.3	4/20/94
EP 94916547.6-1212 (PUB. NO. 0696320)	4/20/94
AU 68175/94	4/20/94
JP 523578/94	4/20/94
CA 2159106	4/20/94

Applicant respectfully requests that the Examiner review the foregoing reference and make it of record in the file history of the above-captioned application.

* * *

Respectfully submitted,
BROWN, MARTIN, HALLER & McCLAIN

By: _____
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Registration No. 33,779

Attorney Docket No. 6362-9383D
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FORM PTO-1449 (Modified)	ATTY. DOCKET NO. 6362-9383D	SERIAL NO. 08/935,105
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	APPLICANT DAGGETT *et al.*	
	FILING DATE September 29, 1997	GROUP Unassigned

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER							DATE	NAME	CLASS	SUB CLASS	FILING DATE
	A	4	8	3	7	1	4	8	6/6/89	Cregg	435	172.3	10/30/84
	B	4	8	5	5	2	3	1	8/8/89	Stroman *et al.*	435	68	9/25/85
	C	4	8	8	2	2	7	9	11/21/89	Cregg	435	68	10/25/85
	D	4	9	2	9	5	5	5	5/29/90	Cregg *et al.*	435	172.3	10/19/87
	E	5	0	2	4	9	3	9	6/18/91	Gorman	435	69.1	9/25/87
	F	5	0	2	8	7	0	7	7/2/91	Nichols *et al.*	546	156	11/20/89
	G	5	2	0	2	2	5	7	4/13/93	Heinemann *et al.*	435	252.3	6/21/91
	H	5	4	0	1	6	2	9	3/28/95	Harpold *et al.*	435	6	8/7/90
	I	5	4	0	3	4	8	4	4/4/95	Ladner *et al.*	435	235.1	1/26/93
	J	5	4	3	6	1	2	8	7/25/95	Harpold *et al.*	435	6	1/27/93

FOREIGN PATENT DOCUMENTS

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	K	0	6	0	0	2	7	8	6/8/94	EP A2	--	--		
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	M	0	6	7	4	0	0	3	9/27/95	EP	--	--		
	N	2	2	9	1	6	4	7	1/31/96	GB	--	--		
	O	6	0	1	4	7	8	3	1/25/94	JP	--	--	•	
	P	9	1	0	6	6	4	8	5/16/91	PCT	--	--		
	Q	9	2	2	3	7	6	9	11/12/92	GB	--	--		
	R	9	3	0	7	0	2	6	4/2/93	GB	--	--		
	S	9	3	1	3	4	2	3	7/8/93	PCT	--	--		
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	U	9	3	2	4	6	2	9	12/9/93	PCT	--	--		

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	V	9	3	2	5	6	7	9	12/23/93	PCT	--	--	•	
	W	9	4	0	1	0	9	4	1/20/94	PCT	--	--	•	
	X	9	4	0	4	6	9	8	3/3/94	PCT	--	--	•	
	Y	9	4	0	6	4	2	8	3/31/94	PCT	--	--		
	Z	9	4	1	1	5	0	1	5/26/94	PCT	--	--		
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	CN	Meldrum, Possible therapeutic applications of antagonists of excitatory amino acid neurotransmitters, *Clin. Sci. 68*:113-122 (1985)
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	DW	Stumpo, D. *et al.*, Identification of c-fos sequences involved in induction by insulin and phorbol esters, *J. Biol. Chem. 263(4)*:1611 (1988)
	DX	Sugihara *et al.*, Structures and properties of seven isoforms of the NMDA receptor generated by alternative splicing, *Biochem. Biophys. Res. Commun. 185(3)*:826-832 (1992)

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FORM PTO-1449 (Modified)	ATTY. DOCKET NO. 6362-9383D	SERIAL NO. 08/935,105
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	APPLICANT DAGGETT *et al.*	
	FILING DATE September 29, 1997	GROUP Unassigned

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	DY	Sugiyama *et al.*, A new type of glutamate receptor linked to inositol phospholipid metabolism, *Nature 325*:531 (1987)
	DZ	Sullivan *et al.*, Identifiction of two cysteine residues that are required for redox modulation of the NMDA subtype of glutamate receptor, *Neuron 13*:929-936 (1994)
	EA	Takano *et al.*, Chromosomal localization of the ε1, ε3 and ζ1 subunit genes of the human NMDA receptor channel, *Biochem. Biophys. Res. Commun. 197(2)*:922-926 (1993)
	EB	Tamir *et al.*, G-protein βγ forms: Identity of β and diversity of γ subunits, *Biochemistry 30*:3929 (1991)
	EC	Tanabe *et al.*, A family of metabotropic glutamate receptors, *Neuron 8*:169-179 (1992)
	ED	Tingley *et al.*, Regulation of NMDA receptor phosphorylation by alternative splicing of the C-terminal domain, Nature 364:70-73 (1993)
	EE	Ulas *et al.*, Selective increase of NMDA-sensitive glutamate binding in the striatum of Parkinson's disease, Alzheimer's disease, and mixed Parkinson's disease/ Alzheimer's disease patients: An autoradiographic study, *J. Neurosci. 14(11)*:6317-6324 (1994)
	EF	Urlaub *et al.*, Effect of gamma rays at the dihydrofolate reductase locus: Deletions and Inversions, *Somatic Cell and Mol. Genetics 12(6)*:555-566 (1986
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	EJ	Wafford *et al.*, Preferential co-assembly of recombinant NMDA receptors composed of three different subunits, *NeuroReport 4(12)*:1347-1349 (1993)
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	EM	Wigler *et al.*, DNA-mediated transfer of the adenine phosphoribosyltransferase locus into mammalian cells, *Proc. Natl. Acad. Sci. USA 76*:1373-1376 (1979)
	EN	Wong *et al.*, The anticonvulsant MK-801 is a potent *N*-methyl-D-aspartate antagonist, *Proc. Natl. Acad. Sci. USA 83*:7104 (1986)

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	EO	Yakel *et al.*, Identification of a Ca^{2+}/calmodulin protein kinase II regulatory phosphorylation site in *N*-methyl-D-aspartate glutamate receptors, *Proc. Natl. Acad. Sci. USA 92*:1376-1380 (1995)
	EP	Yamazaki, M. *et al.*, Cloning, expression and modulation of a mouse NMDA receptor subunit *FEBS Letters 300(1)*:39 (1992)
	EQ	Young *et al.*, NMDA receptor losses in putamen from patients with Huntington's Disease, *Science 241*:981-983 (1988)
	ER	Younkin *et al.*, Inducible expression of neuronal glutamate receptor channels in the NT2 human cell line, *Proc. Natl. Acad. Sci. USA 90*:2174-2178 (1993)
	ES	Zeevalk *et al.*, Chemically induced hypoglycemia and anoxia: Relationship to glutamate receptor-mediated toxicity in retina, *J. Pharmacol. Exp. Thera. 253(3)*:1285-1292 (1990)
	ET	Zeevalk *et al.*, Mechanisms underlying initiation of excitotoxicity associated with metabolic inhibition, *J. Pharmacol. Exp. Thera. 257(2)*:870-878 (1991)
	EU	Zhang *et al.*, Spermine potentiation of recombinant *N*-methyl-D-aspartate receptors is affected by subunit composition, *Proc. Natl. Acad. Sci. USA 91*:10883-10887 (1994)
	EV	Zipser *et al.*, Mapping function domains in the promoter region of the herpes thymidine kinase gene, *Proc. Natl. Acad. Sci. USA 78(10)*:6276-6280 (1981)

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